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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------------|------------------|
| 09/497,743 | 02/04/2000 | Jae-Yoel Kim | 678-452(P9148) | 7860 |
| 28249 | 7590 | 12/29/2004 | EXAMINER KUMAR, PANKAJ | |
| DILWORTH & BARRESE, LLP 333 EARLE OVINGTON BLVD. UNIONDALE, NY 11553 | | | ART UNIT 2631 | PAPER NUMBER |

DATE MAILED: 12/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/497,743

Applicant(s)

KIM ET AL.

Examiner

Pankaj Kumar

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,5,7,8 and 11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,2,4 and 5 is/are allowed.
- 6) ☒ Claim(s) 7-8 and 11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant argues that since Odenwalder is spreading with PNI and PNQ, it is not spreading with a portion of a quasi-orthogonal code and a remaining portion of a quasi-orthogonal code. This is not persuasive. PNI is the in-phase portion or one portion of the PN code and PNQ is the quadrature portion or the remaining portion of the PN code. In-phase and quadrature portions are orthogonal to each other. Odenwalder is spreading with a PN code. The spreading is occurring such that the spreading occurs with one portion, which is the in-phase portion of the PN code, and the spreading also occurs with the remaining portion or the quadrature portion of the PN code.

2. Applicant argues that Odenwalder does not teach spreading with one orthogonal code since it is spreading with PNI and PNQ, which are different. This is not persuasive since Odenwalder is spreading with one orthogonal code, PN. PN has to be orthogonal so that individual users are distinguishable. PNI and PNQ are merely the in-phase and quadrature portions of the PN code.

Response to Amendment

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7-8, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Odenwalder et al. USPN 6,173,007
5. As per claim 7, Odenwalder teaches a channel spreading method in a CDMA (Code Division Multiple Access) communication system comprising the steps of: generating a first pair of symbols to duplicate an input (Odenwalder fig. 3: 2 lines for DI); generating a second pair of symbols to create a complementary symbol of the input symbol (Odenwalder fig. 3: 2 lines for DQ); spreading the first pair of symbols by a quasi-orthogonal code in order to transmit the spread first pair of symbols through a first antenna (Odenwalder fig. 3: PN with a set of multipliers); spreading the second pair of symbols by a quasi-orthogonal code in order to transmit the spread second pair of symbols through a second antenna (Odenwalder fig. 3: PN with another set of multipliers); wherein one of the first pair of symbols is spread by a portion of the quasi-orthogonal code (Odenwalder fig. 3: PNI) and other of the first pair of symbols is spread by the remaining portion of the quasi-orthogonal code (Odenwalder fig. 3: PNQ).
6. Odenwalder fig. 3 shows 1 antenna via $s(t)$.
7. Odenwalder does not show two antennas.
8. It is common knowledge to duplicate an antenna.
9. It would have been obvious to one skilled in the art at the time of the invention to modify Odenwalder to have two antennas since it has been held that duplication of parts requires routine skill in the art and it is a matter of design choice to use one antenna or two antennas.

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10. As per claim 8, Odenwalder teaches the channel spreading method in claim 7 wherein the quasi-orthogonal codes used to spread the first and second pair of symbols are the same (Odenwalder fig. 3: they are the same since both are PN).

11. As per claim 11, Odenwalder teaches the channel spreading method in claim 7 wherein one of the second pair of symbols is spread by a portion of the quasi-orthogonal code (Odenwalder fig. 3: PNI) and other of the second pair of symbols is spread by the remaining portion of the quasi-orthogonal code (Odenwalder fig. 3: PNQ).

Allowable Subject Matter

12. Claims 1, 2, 4 and 5 are allowed.

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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14. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pankaj Kumar whose telephone number is (571) 272-3011. The examiner can normally be reached on Mon, Tues, Thurs and Fri after 8AM to after 6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PK

TESTA
PRIMARY EXAMINER

